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State of California
Energy Resources Conservation
And Development Commission

In the matter of	)	Docket No. 01-AFC-19
	)	
Application for Certification	)	Air Quality and Biology
SMUD Consumes Power	)	Brief
Project	)	

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BS

Existing Air Quality

PM-10

The applicant has testified that existing air quality in the region is improving but upon cross-examination he has admitted that there is no clear trend. The applicant bases his assumption that air quality is improving on an analysis of air quality over a twenty year period. A close look at recent trends shows there is no trend towards air quality improvement in the project area or in the region. Since 1993 the number of violations of the state Pm-10 standard has increased from 92 to 126 in 2002 a clear trend towards increasing violations of the State pm-10 standard. The only violations of the federal pm-10 standard in the last 10 years occurred six times in 1999 a fact the applicant would like to ignore.

PM10 Trends Summary: Sacramento Valley Air Basin

2002	126	0	27.3	30.9	30	92	111.6	0
2001	96	0	26.1	30.2	32	105	140.7	100
2000	81	0	24.7	27.9	30	86	163.2	100
1999	144	6	30.2	38.4	30	179	206.4	100
1998	97	0	22.8	29.0	28	130	116.0	100
1997	65	0	25.3	28.6	30	126	136.6	100
1996	129	0	25.5	29.8	32	98	128.7	100
1995	108	0	26.3	33.4	32	145	134.9	100
1994	108	0	30.0	34.5	35	154	121.7	100
1993	92	0	28.8	36.9	37	110	130.0	100

The most important trend to observe is the local trend in PM 2.5 violations because 95% of the Particulate Matter emissions from the CPP will be pm 2.5 the most harmful form of particulate matter. The number of violations of the Federal Pm 2.5 standard has increased from 1 in 2000 to 4 in 2002 as displayed below in a excerpt from the CARB website. Obviously the new state PM 2.5 standard would be violated many more times as it is more stringent and is designed to protect more sensitive members of the population.

View this page for another pollutant:

Hourly O_3 | 8-Hour O_3 | PM 10 | PM 2.5 | CO | NO_2

Highest 4 Daily PM2.5 Measurements
and Annual PM2.5 Statistics
at Sacramento-T Street
micrograms per cubic meter

	2000		2001		2002	
High	Jan 09	67.0	Jan 20	72.0	Nov 28	73.0
2nd High	Dec 28	64.0	Jan 02	63.0	Nov 27	69.0
3rd High	Jan 08	63.0	Dec 13	56.0	Nov 20	68.0
4th High	Dec 29	56.0	Jan 04	55.0	Nov 29	66.0
*Days > Nat'l Standard		1		1		4

The applicant also chooses to ignore the evidence from the CARB almanac (Intervenor Peasha Exhibit 6) that CARB estimates that direct emissions of PM-10 are expected to increase from 253 tons per day in 2000 to 297 tons per day in 2010. Clearly examining current trends in pm-10 violations and projections of a 17% increase in direct emissions over the next 10 years demonstrates that pm-10 levels in the region are on the rise. The applicant would choose to point to improvements since 1981 but the real time period that should be examined is the recent trends and the future projections of direct pm-10 emissions in the region. Clearly after cross-examination the applicant would not try to assert the ludicrous assumption that pm-10 levels or pm 2.5 levels have decreased over the last 10 years or would expect to improve in light of CARB projections of an increase in pm-10 emissions.

OZONE

Ozone trends in the region also show no improvement over the last 10 years as demonstrated in the CARB Ozone trend summary below. The applicant while examining trends over a twenty year period chooses to ignore recent

trends that show no improvement in regional ozone trends in the last 10 years.

Ozone Trends Summary: Sacramento Valley Air Basin

Year	Days > Standard: 1-Hour State	Days > Standard: 1-Hour Nat'l	Days > Standard: 8-Hour Nat'l	1-Hour Observations: Maximum	1-Hour Observations: 3-Year 4th High	8-Hour Averages: Maximum	8-Hour Averages: 3-Year Average 4th High	EPDC	Year Coverage
2002	44	5	33	0.139	0.132	0.120	0.100	0.135	100
2001	46	2	37	0.142	0.133	0.108	0.099	0.138	100
2000	42	5	35	0.138	0.148	0.108	0.105	0.153	100
1999	59	7	43	0.160	0.148	0.129	0.101	0.155	100
1998	62	14	60	0.160	0.148	0.137	0.097	0.161	100
1997	25	3	15	0.143	0.133	0.107	0.097	0.141	100
1996	58	9	44	0.157	0.145	0.126	0.106	0.154	99
1995	50	11	40	0.156	0.145	0.128	0.106	0.149	100
1994	60	9	48	0.145	0.143	0.121	0.104	0.148	100
1993	34	7	22	0.150	0.150	0.120	0.110	0.159	100

Local Ozone violations at the Sloughhouse monitoring station illustrated below also demonstrate no clear improvement in air quality in the project area.

Highest 4 Daily Maximum Hourly Ozone Measurements
and Number of Days Above the Hourly Standards

at Sloughhouse
parts per million

	2000		2001		2002	
High	May 21	0.138	Aug 26	0.118	Aug 11	0.127
2nd High	May 22	0.134	May 08	0.114	Aug 12	0.127
3rd High	Aug 01	0.133	Jun 15	0.108	Jul 10	0.120
4th High	Jul 30	0.121	Jun 16	0.108	Aug 08	0.116
*Days > State Standard		22		19		22
*Days > National Standard		3		0		2

**Year Coverage 94 96 97

Clearly the record reflects that there has been no improvement in air quality in the region in the last 10 years and the projections for increasing emissions in the region make it imperative that the strictest standards of pollution control and a complete and effective offset package be adopted. This is the responsibility of the CEC to analyze and mitigate all impacts of the project on air quality to the fullest.

Ammonia Slip

The applicant has testified that the pollution control district is in the best position to analyze what is the appropriate level of ammonia slip. The record reflects that the SMAQMD regulations do not even allow offsets for ammonia slip.

MR. SARVEY: Okay, thanks. All right.
16 Do your regulations allow you to require offsets
17 for the ammonia emissions from this plant?
18 MS. KENNARD: No.
(RT 5-13-03 P.307)

The record also reflects that the SMAQMD did no modeling of ammonia concentrations in the project area.

MR. SARVEY: Let me clarify that. Did
12 you do any modeling to determine the background
13 ammonia concentrations in the project area?
14 MR. KREBS: No. (RT 5-13-03 p.309)

The applicant implies that the SMAQMD has done an analysis to determine that the proper ammonia slip for this project is 10 ppm and that the district has a BACT Standard for ammonia slip. The record reflects that no such analysis has been done and that the pollution control district has no BACT standard for ammonia slip.

13 MR. KREBS: Our regulations require that
14 the NOX meet the best available control
15 technology, which we determined to be two parts

16 per million. We do not have a back standard for
17 ammonia, therefore we didn't require the lower
18 five PPM standard that you suggested. RT 5-13-03 p. 308)

In fact the SMAQMD does not even analyze the effects of a lower ammonia slip level on air quality.

MR. SARVEY: I believe the question I
20 asked was if you were to require offsets for NOX
21 emissions -- and you can -- and you can't provide
22 offsets for ammonia emissions, wouldn't air
23 quality be improved by limiting the ammonia slip
24 and requiring additional ERC's for the additional
25 NOX emissions that occur from the lower ammonia
1 slip level?
2 MS. KENNARD: We didn't' analyze that
3 scenario, so I don't know if it's a yes or a no. (RT 5-13-03)

The applicant in his brief has suggested that CEC staff is imposing a inconsistent standard for ammonia slip based on the San Joaquin Valley Energy Center staff position. Even if this was relevant to the immediate case the applicants exhibit "Summary of Ammonia Slip Levels in Recent CEC Siting Cases" reveals that since 1999 all cases sited in the SMAQMD have had a 5 ppm ammonia slip level recommended this fact was admitted by the applicants witness.

4 A Okay, if you question is of the three
5 projects listed in the Sacramento Valley Air Basin,
6 have the majority of those three projects had a 5 ppm
7 slip level recommended by the California Energy
8 Commission in the final staff assessment, the answer is
9 yes. (RT-3-13-03 p. 94)

Recent cases like the EAEC, Tesla and the Palomar plant all have CEC recommended ammonia slip levels of 5 ppm.

The applicants brief also suggests that the NOx and ammonia slip levels must be considered together in determining the proper combination of limits. Yet the applicants witness admitted that two

recent siting cases are proposing ammonia slip of 5ppm and a NOx limit of 2ppm.

16 BY MR. SARVEY:
17 Q Are you aware that the Tesla project was
18 just permitted by the Bay Area Air Quality Management
19 District with an ammonia slip of 5 parts per million
20 and a 2 parts per million
21 NOx?
22 A That is my understanding. That's
23 what -- that is my understanding. (RT 3-13-03 p. 94)

24 Q Okay. Are you aware that the principals in
25 the Palomar Power Plant also have just agreed to a 5
1 parts per million ammonia slip limit?
2 A They have just proposed one, yes. (RT 3-13-03 P. 94)

The applicants witness also testified that a 5 ppm Ammonia Slip level is feasible in combination with a 2 ppm NOx limit.

3 Q Is it technically feasible for this project
4 to reduce its ammonia slip level to 5 parts per
5 million?
6 A The actual ammonia slip level from this
7 project will be on the order of 1 to 2 parts per
8 million. So I guess the answer to your question would
9 be yes. (RT 5-13-03 p. 95)

The fact that the region has showed no air quality improvement over the last 10 years and the majority of the applicants ERC's which are the result of stationary source shutdowns which occurred before 1994 and do not achieve a real air quality benefit (Intervener Peasha Exhibit 17) the strictest controls should be placed on this project .

Emission Reduction Credits

NOx offsets

The projects NOX credits are over 50 % VOC credits substituted for NOx. While this may be an effective strategy for controlling ozone during the Ozone season the projects VOC offsets do not effectively mitigate the secondary formation of pm-2.5 that occurs in the winter months. Therefore the projects offset package is inadequate to mitigate the secondary PM 2.5 concentrations that occur predominately in the winter months of November through February. Staff has testified that the high concentrations of pm 2.5 in the winter are primarily due to the combination of ammonia and sulfates in reaction to the NOX concentrations in the atmosphere. Staff has also testified that the VOC emissions lack the elemental carbon molecules to form the secondary pm 2.5. During Quarters 1 and 4 80,000 Pounds OF VOC's will be used as NOx offsets which leaves 80,000 pounds of NOx which will form secondary PM-2.5 that remain to be offset. Assuming that the applicant is correct that the area is ammonia rich most of these unmitigated NOX emissions will combine with the ammonia concentrations to form secondary PM 2.5. Even if the area is not ammonia rich allowing the applicant an ammonia slip level of 10ppm will supply all the necessary ammonia for this chemical reaction. This will require the addition of additional mitigation that the proposed wood stove program or some other contemporary emission reduction program could provide. Without additional mitigation the project will worsen existing violations of the state pm-10 standard and the federal pm 2.5 standard and possibly create new violations of the federal pm-10 and new State PM 2.5 Standards in violation of CEQA Guidelines.

Pm-2.5 offsets

The staff has revised the projects pm 2.5 Emissions and speciated the projects pm-10 offsets in the errata in Table 9. The staff appropriately has discounted the projects pm 2.5 emissions by 5 %. Subsequently they have discounted 48 percent of the offsets by Ap-42 emission factors but fail to discount the rest of the projects ERC's and have credited 52% of the projects

ERC's as 100% pm 2.5. Staff has also testified that they have relied on the SMAQMD who told them that almost 100% of the ERC's that were not discounted were PM 2.5 (RT 5-13-03 p. 348) The SMAQMD testified that they did not analyze pm 2.5 in their analysis. In absensce of verifiable PM 2.5 content of the ERC's AP-42 emission factors must be consulted. Since the majority of these unclassified emissions are from detergent manufacturing an analysis of the particulate size would reveal the majority of the particle sizing for the unspeciated sources. The most recent report on detergent manufacturing shows no conclusive data as to particle size so it is unclear how a claim can be made that 100% of the pm-10 emissions could be pm 2.5. Under these conditions the wood stove program should be reinstated.

BACKGROUND REPORT
AP-42 SECTION 5.15
SOAP AND DETERGENTS

4.4 DATA GAP ANALYSIS

Six source test summaries referenced by the previous revision (September 1988) were not used in calculating emission factors because of their lack of documentation. Emission factors for specific particulate sizes are not included in this revision since the data were derived from the undocumented source tests and were previously rated D. For future revisions, it is suggested that new source test data be gathered and that emission factors should be calculated that are based on these data. Data on emissions of VOCs, HAPs, global warming gases, heavy metals, and other pollutants should also be collected via the new source tests, and emission factors calculated for these pollutants, if applicable. To summarize the emission factors given in this current AP-42 section are generally unsupported by any current source test data and have therefore been given a quality rating of "E."

Biology

The applicant did no analysis of NOx deposition and concentrations in vernal pools and its impact on sensitive species in the project area.

1 one specific point.
2 Mr. Koford brought up the fact that, in
3 the application for certification, there is a
4 discussion of the effects of air pollution
5 emissions -- I should say from the proposed
6 plant -- on wildlife in the area. And so I asked
7 staff and obtained a copy of the section he
8 referred to, 8.2. And asked him to point out
9 where that is located.
10 I think the question that Mr. Sarvey
11 originally asked was -- at least this is how he
12 expressed it to me, I don't know if he expressed
13 it on the record -- the NOX, what would be the
14 effects of NOX emissions on specifically on
15 aquatic species, but, you know, even just in the
16 air on terrestrial species?
17 And I don't see that specific issue
18 addressed here. I would refer you to 8.2-12, and
19 I think what it refers to here is total dissolved
20 solids, am I correct about that, and salts?
21 I'd like to ask the Applicant concerning
22 that question, and their experts, what about NOX
23 emissions and SOX emissions, and PM 2.5 and PM 10
24 emissions? How is the effect of that assessed,
25 and is it assessed, on biology in the area?
1 MR. KOFORD: The question that was
2 asked, just to refresh your memory, was where are
3 power plant emissions addressed? I understand
4 that you've now asked about NOX and PM 2.5.

22 Had we been asked at that early time we
23 would have provided analysis in the AFC, but there
24 is not analysis in the AFC of NOX impacts or PM
25 2.5 impacts on the local habitat.
1 MR. ROSKEY: Is is correct then to
2 summarize your response by saying that no analyses
3 have been performed on those issues?
4 MR. KOFORD: No, that is not correct.
5 As I said, the analysis consists of consulting
6 with the agencies to identify and scope the range
7 of the problem, identify issues, and determine
8 impacts there from.
9 For example, during the process Fish and
10 Game brought up the issue of particular species
11 that should be evaluated, CEC staff said we should
12 have surveys for burrowing owl and fairy shrimp,
13 and the Applicant responded appropriately to those
14 concerns. Had that question been raised, we would
15 have responded similarly.
16 MR. ROSKEY: And it wasn't raised, is
17 that what you're saying, that it wasn't raised?
18 MS. LUCKHARDT: I believe that's been
19 asked and answered.
20 MR. ROSKEY: But he has avoided saying
21 that there is no analysis?
22 MS. LUCKHARDT: I believe that he has a
23 right to explain his testimony as he sees fit.
24 MR. ROSKEY: Could I ask one further
25 question. Is it a possibility that nitrogen
1 concentration and sulphur concentration could
2 result from emissions in vernal pools in the area?
3 MR. KOFORD: I wouldn't speculate on
4 that.
5 MR. ROSKEY: Okay, well, I'm amazed that
6 we're doing an environmental impact --
(RT 5-12-03 p.220-224)

Staff did no analysis on NOx deposition and concentrations on sensitive aquatic species .

1 . Do you actually
2 research deposition levels for ponds and how that
3 might affect species?
4 MS. HOLMES: I'm sorry, I didn't
5 understand the question, could you please restate
6 that?
7 MR. ROSKEY: That would be the
8 deposition, the filtration or whatever of
9 emissions into the water, you know, as it falls.
10 Did you find anything that discusses specifically
11 how that affects aquatic environments?
12 MS. DORIN: I did not do an analysis of
13 nitrogen deposition on the vernal pools for this
14 project.
15 MR. ROSKEY: Thank you.

The Staff did not examine the effects of continuous noise impacts of the power plant on special status species only the noise of construction impacts was evaluated. Because birds and other sensitive species could come back to their nest after construction hours but the steady state noise of the plant would drive sensitive species away from the project area mitigation should be provided around the plant were the noise levels are over 60 db at a constant level.

1 MR. ROSKEY: Thank you. I have a couple
2 of questions I'd like to ask. In your report you
3 say that, at 1,000 feet the noise impact, the
4 noise registers at 56 decibels, is that correct?
5 MS. HOLMES: Can you provide a page
6 reference so that we can find it more quickly?
7 MR. ROSKEY: 4.2-25.
8 MS. HOLMES: Thank you.
9 MS. DORIN: That is correct.

MR. ROSKEY: I was just curious, did you
11 find any vernal pools or anything of that sort in
12 the nests or anything like that within a thousand
13 feet?
14 MS. DORIN: Yes, there are sensitive
15 wetland resources, and there are potential for
16 nesting birds within that. That is one of the
17 reasons why we are requiring a 2081 permit. And
5 I was concerned that there
6 could be nest failures from noise from the
7 horizontal directional drilling equipment, as well
8 as construction impacts, and because of that those
9 nests will have to be monitored

Staff has testified that loss of foraging and nesting habitat would be a significant impact under CEQA but has done no analysis on the steady state operation of the plant and its noise impacts.

19 HEARING OFFICER SHEAN: Okay. I just
20 have a question because I'm trying to clarify page
21 4.2-25. In the fourth full paragraph you state
22 here "loss of foraging and nesting habitat
23 bird species, nest abandonment, or forced () would
24 result in significant impacts." Is that your
25 conclusion, that there will be significant

The applicant did not examine noise impacts from the operation of the plant either only construction impacts.

MR. ROSKEY: Okay. What about noise and
1 vibration, was there any consideration of the
2 effects on wildlife in the area?
3 MR. KOFORD: I tell you, we'd certainly
4 have considered it had we thought there was a
5 sensitive species approximate to the area, we
6 would have mentioned it.
7 Along the pipeline there is a specific

8 concern that was raised by the CEC staff for
9 noise. We evaluated and I think we've determined
10 that we don't feel there are significant impacts
11 there.
12 MR. ROSKEY: And as far as plant
13 operation, you didn't identify any issue there?
14 MR. KOFORD: That's correct.

Staff only analyzed lighting with respect to avian collision and electrocution and not the effects of the plants lighting on special status species and their habitat and nighttime foraging

MR. ROSKEY: Okay. Did you analyze the
23 effect of lighting on habitat in the area?
24 MS. DORIN: I did.
25 MR. ROSKEY: Where is that in here?
1 MS. DORIN: It isn't clearly stated, but
2 it is part of the avian collision
3 and electrocution section.

The applicant did not analyze any lighting impacts on special status species.

MR. ROSKEY: And may I ask one further
16 question concerning lighting. Did you identify
17 any issue as far as that's concerned, as far as it
18 affecting wildlife in proximity to the proposed
19 plant?
20 MR. KOFORD: I did not. I know it's a
21 concern of staff's, so you might redirect that
22 question.
23 MR. ROSKEY: Thank you.